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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,683	03/04/2002	Hiroaki Matsuda	220228US0	2827

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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/086,683	Applicant(s) MATSUDA ET AL.	
	Examiner Christopher RoDee	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 August 2004 has been entered.

Claim Rejections - 35 USC §§ 102 & 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4, 6, 13, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuda *et al.* in US Patent 6,534,232.

Claims 1, 4, 6, 13, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2001-027829.

Claims 2, 3, 5, 6, and 9-14 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsuda *et al.* in US Patent 6,534,232.

Claims 2, 3, 5, 6, and 9-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2001-027829.

Applicants have provided a detailed traversal of these rejections as previously set forth. Certain new claims have been added to this rejection as discussed below.

The Examiner has carefully considered the traversal and reviewed the references relied upon. On response p. 7 applicants depict aggregates and agglomerates of carbon black, each composed of primary particles of carbon black. Applicants state, "Unless one sufficiently describes the manner in which the carbon particles are mixed, it is impossible to know the kinds of shear forces that the carbon black particles experience. Correspondingly, it is impossible to ascertain the number average particle diameter of carbon black in a resin layer that surrounds a core particle." Applicants then provide a "refresher" on response page 8 where the production characteristics of Carriers (I) – (IV) in the specification is discussed. On response pages 9 and 10 applicants note that there are two ways to control the carbon black size: dispersion time and controlling the temperature of the resin coating device. On response page 10, applicants stress a key point, "Consequently, in the absence of a specific disclosure which details the mixing time, or coating temperature, there can be no issue of explicit anticipation, as the two references do not describe the CBDN as contained in the resin layer. Furthermore, there can be no issue of inherent anticipation, as that would require that the carbon black in the resin layer have a CBDN that falls within the 0.01 - 0.1 gm range each and every time (MPEP 2131)." Applicants also state on page 11, "As noted above, the specific resistance of the carrier particle is inversely proportional to the size of the carbon black particle within the coating layer of the carrier particle. For example, when the particle size is too small, i.e., $< 0.01 \mu\text{m}$ ($< 10 \text{ nm}$), the specific resistance is unacceptably high ($7.9 \times 10^{15} \Omega\text{cm}$; cf Carrier (III)). Conversely, when the particle size is too large, i.e., $> 0.1 \mu\text{m}$ ($> 100 \text{ nm}$), the specific resistance is too small ($5.0 \times 10^9 \Omega\text{cm}$; cf Carrier (IV))."

A review of Matsuda's Carrier D shows that the coating liquid applied to the surface of the carrier is the same as that used in the instant specification. Matsuda discloses its coating liquid as containing:

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	Parts by Weight
Dimethyl silicone resin S with the following formula:	600
$ \begin{array}{c} \text{CH}_3 \qquad \text{CH}_3 \\ \qquad \quad \\ \text{---Si---O---Si---O---} \\ \qquad \quad \\ \text{OH} \qquad \quad \text{O} \\ \qquad \quad \\ \qquad \quad \text{---Si---O---} \\ \qquad \quad \\ \qquad \quad \text{CH}_3 \end{array} $	
(a solution with a 20% solid component in toluene)	
Toluene	600
γ -aminopropyl-triethoxysilane (Trademark "KBE903", made by Shin-Etsu Chemical Co., Ltd.)	9.7
Carbon black (Trademark "BP-2000" made by Cabot Corp.)	10.2

Compare with specification page specification Example 1 on pages 18 and 19.

Matsuda's core particle also appears to be substantially the same as that used in the specification. Matsuda's core and coating preparation are disclosed as follows:

<u>Formulation of Carrier D</u>	
	Parts by Weight
<u>Core material:</u>	
Magnetite core material (Trademark "SM-400", made by Dowa Teppun Co., Ltd.)	5,000
<u>Coating liquid:</u>	
Coating Liquid "a"	1,220
Tin catalyst T (10% toluene solution) (C_3H_7) ₂ Sn(OCOCH ₃) ₂	16.8

This reference uses the same type and amount of the core, the same coating liquid, and the same tin catalyst as the instant specification. Again, see specification Example 1.

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Applicants are correct that the reference does not disclose the preparation details for coating for coating liquid on the carrier core (i.e., the dispersion time and the temperature of the resin coating device are not disclosed). It is important to note, however, that the reference does disclose that the coated carrier core has a specific resistance of $2.0 \times 10^{13} \Omega\text{cm}$ (col. 11, l. 62). This is the same specific resistance as obtained in the instant specification (see response p. 8, Carrier I). Because the reference produces a carrier from the same coating liquid where this liquid is coated on substantially the same carrier core and in the same amounts using the same catalyst, because Matsuda's resultant carrier has the same specific resistance as that of the instant specification, and because the resistance is taught as being directly controlled by the size of the carbon black particles in the carrier's resin coating layer, there is sufficient reason to believe that the reference inherently has carbon particles having a number average diameter of from 0.01 to 0.1 μm , which is the scope of the instant claims. It is not necessary for the reference to specifically disclose the preparation characteristics of the carrier in order to anticipate the instant claims because the reference provides sufficient reason to believe that Matsuda's carrier has the claimed carbon particle diameter. As noted, the carbon particle diameter is taught as controlling the resistance of the carrier. Because the carrier has a resistance within the scope of the claims and because all other features of the carrier are the same or substantially the same, the Examiner has provided sufficient reasons to believe that the reference inherently has the carbon particle diameter claimed.

Because the reference's amounts of the coating liquid and the sizes of the carrier core are the same or substantially the same as shown in the specification it appears that the reference inherently has the claimed coating layer thickness., particularly in view of the disclosure of useful thicknesses in column 8, lines 61-67 (see new claims 9 and 10). New claims 11 and 12 are rejected for the same reasons as given for claims 2 and 3 in the previous

Office actions (e.g., see Office action of 27 May 2003, pp. 7 & 8). The newly recited toner is disclosed by the reference as having a thermoplastic resin, a colorant, a release agent (carnauba wax), and a charge control agent (see col. 12, l. 64 – col. 13, l. 38 & Examples) and is fixed in a commercially available copying machine during image formation. This indicates that the toner resin is thermoplastic because it must melt or soften during the fixing process.

The rejection is still seen as proper for the claims as presented and is maintained for the previously presented claims and is extended to the new claims for the reasons given herein. The above comments are equally applicable to the JP reference because the two references have equivalent disclosures.

Claims 14, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda *et al.* in US Patent 6,534,232 or JP 2001-027829 each in view of *Handbook of Imaging Materials* to Diamond, pp. 162-170.

Matsuda and the JP reference were discussed above with respect to the base claims from which the above rejected claims depend. The reference does not disclose a magnetic toner and does not disclose the specific monomers of the thermoplastic resin. In the event the reference does not disclose a thermoplastic resin in claim 14 and the other toner features of the above rejected claims, the following reference is relied upon.

Diamond discloses that toner contains a binder resin that melts when heated, such as styrene copolymers of styrene acrylates, methacrylates, and butadienes (p. 165, bottom). The reference also discloses that colorants, charge control agents, magnetic particles, and release agents are typically added to toner formulations (see pp. 168-170).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a thermoplastic resin, such as a styrene acrylate, as the toner binder

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resin in the invention of Matsuda or the JP reference because Diamond teaches that these resins are commonly used in the art and are chosen for their fixing properties. The artisan would also have found it obvious to produce the toner of the JP document or Matsuda as a magnetic toner because Diamond teaches that magnetic additives are common in the art for toner in two-component developers because this gives better toner control in the machine environment.

Claims 1, 6, 13-15, 17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshino *et al.* in US Patent 5,849,448.

Claims 1-6 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino *et al.* in US Patent 5,849,448 in view of Shintani *et al.* in US Patent 5,204,204 and further in view of *Handbook of Imaging Systems*, to Diamond, pp. 162-170 & 222-224.

These rejections were presented in the last Office action. Applicants have presented a detailed traversal, particularly in view of the an executed Rule 132 declaration. The traversal parallels the remarks above for Matsuda and the JP reference. Applicants acknowledge that Yoshino does "potentially" disclose a parameter that would allow the artisan to determine carbon black particle diameter noting the mixing characteristics in Example 1. The declaration prepares a coating solution of the carbon black in toluene and mixes for 10 minutes for the comparison example and 20 minutes at an elevated temperature in the inventive example. It appears that the comparative example is mixed at room temperature because no specifics of temperature are provided. This evidence is not persuasive because the carrier solution in the declaration is different from that used in reference and the instant specification. The coating solutions in the reference and specification have additional components (e.g., resin) that is not present in the declaration. No explanation has been provided why the declaration has not

reproduced the actual examples. Further, the claims are directed to the carbon particle size in the resin layer, not in a solution of toluene. The evidence is, consequently, not commensurate with or directed to the claimed invention. The reference reasonably suggests a toner having carbon particles as discussed throughout prosecution and the rejection is maintained.

The rejection is maintained.

With respect to new claims 13-15, 17, and 20, note the toners and their characteristics disclosed in column 8, line 16-62, col. 13, l. 1-23; col. 14, l. 9-13. For claim 19, the disclosure of a toner with a size of 8 microns in Example 1 would have suggested similarly sized toners, such as those slightly smaller (e.g., 7 microns). For claims 16, and 18 Diamond discloses that colorants, charge control agents, magnetic particles, and release agents are typically added to toner formulations (see pp. 168-170). The artisan would also have found it obvious to produce the toner of Yoshino as a magnetic toner because Diamond teaches that magnetic additives are common in the art for toner in two-component developers because this gives better toner control in the machine environment. Further, release agents and charge control agents are commonly employed to reduce offset and improve charge characteristics. The use of these materials in the prior art toner would have been obvious to give these well known and desired characteristics.

Double Patenting

Applicant is advised that should claim 11 be found allowable, claim 12 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Election/Restrictions

Claims 7 and 8 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method and apparatus, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 29 September 2003.

Information Disclosure Statement

The IDS filed 3/8/04, 4/20/04, and 6/18/04 have been considered.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdr
23 September 2004


CHRISTOPHER RODEE
PRIMARY EXAMINER